Sealite
www.sealite.com

SL-SIGN-20

Solar-Powered LED Sign Light
Installation & Service Manual

Version 1.1

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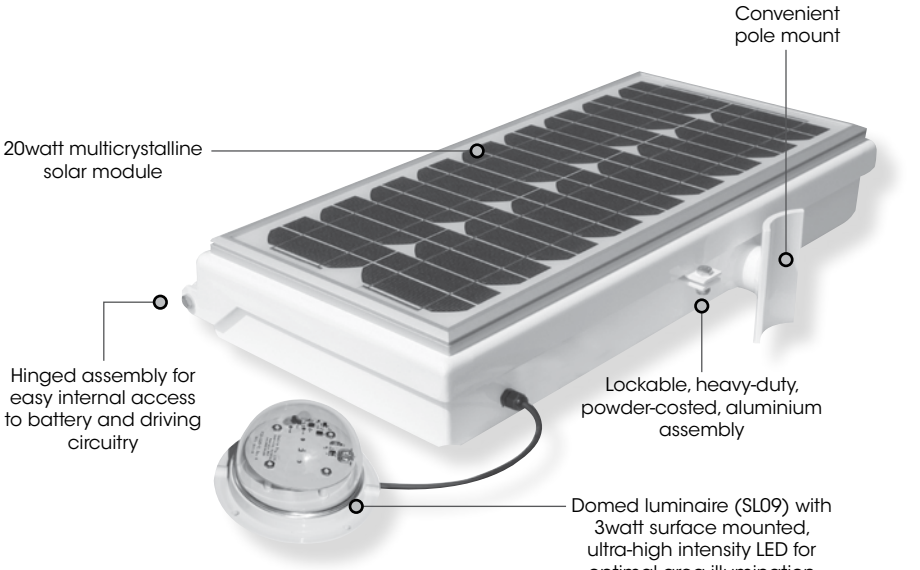
Solar-Powered LED Sign Light


Convenient pole mount
20watt multicrystalline solar module
Hinged assembly for easy internal access to battery and driving circuitry
Lockable, heavy-duty, powder-costed, aluminium assembly
Domed luminaire (SL09) with 3watt surface mounted, ultra-high intensity LED for optimal area illumination (>120 degrees)

SL-SIGN-20-1

Shown with post side mount as standard

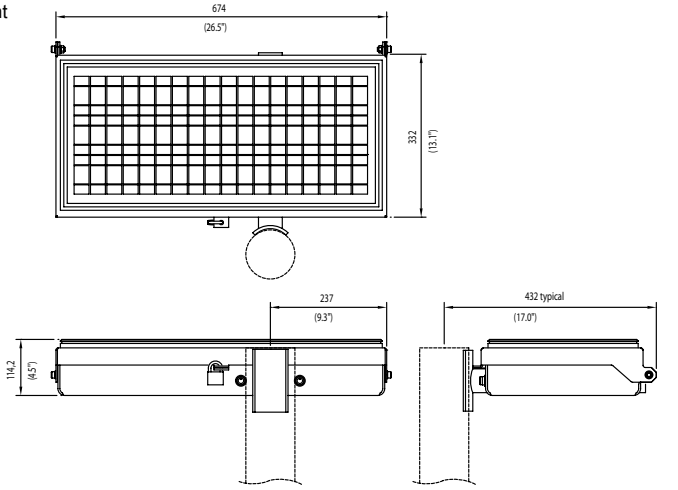
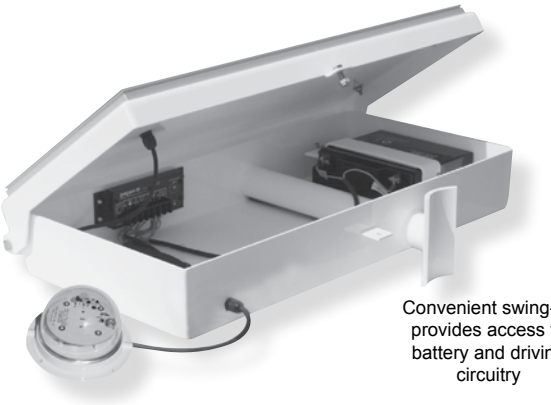


Table of Contents

Introduction.....Page 4
Operating Principle.....Page 4
Technology.....Page 4
SL-SIGN-20 Model.....Page 5
Installation.....Page 6
Activation.....Page 8
Maintenance and Servicing.....Page 9
Replacing the Battery.....Page 9
Trouble Shooting.....Page 9
Sealite LED Light Warranty.....Page 10



Convenient swing-lid provides access to battery and driving circuitry

Version No.	Description	Date	Approved
1.0	Manual Launch	May 2010	A. Dixon
1.1	Update: Spec table	May 2012	J. Dore

Introduction

Congratulations! By choosing to purchase a Sealite lantern you have become the owner of one of the most advanced LED marine lanterns in the world.

Sealite Pty Ltd has been manufacturing lanterns for over 25 years, and particular care has been taken to ensure your lantern gives years of service.

As a commitment to producing the highest quality products for our customers, Sealite has been independently certified as complying with the requirements of ISO 9001:2008 quality management system.

Sealite lanterns comply with requirements of the US Coast Guard in 33 CFR part 66 for Private Aids To Navigation.

By taking a few moments to browse through this booklet, you will become familiar with the versatility of your lantern, and be able to maximise its operating function.

Please remember to complete the Sealite warranty registration card accompanying your lantern.

Operating Principle

The solar module of the power box converts sunlight to an electrical current that is used to charge the battery. The battery provides power to operate the light at night.

The flasher unit has very low current requirements. A microprocessor drives an array of ultra bright LED's through a DC/DC converter, which enables the LED's to operate within the manufacturer's specifications. The battery is protected from over-charging within the circuit to ensure maximum battery life.

On darkness, the microprocessor will initiate a program check and after approximately 1 minute will turn on.

Technology

Sealite is the world's fastest growing manufacturer of marine aids to navigation. We employ leading mechanical, optical, hardware & software engineers to create innovative products to service the needs of our customers worldwide, and offer the widest range of solar-powered LED lanterns in the marketplace.

Electronics

Sealite employs leading in-house electronic engineers in the design and development of software and related circuitry. All individual electronic components are sourced directly by Sealite procurement staff ensuring that only the highest quality components are used in our products.

LED Technology

All marine lanterns use the latest advancements in LED (Light Emitting Diode) technology as a light source. The major advantage of LED's over traditional light sources is well established in that they typically have an operational life in excess of 100,000 hours, resulting in substantial savings to maintenance and servicing costs.

Precision Construction

Commitment to investing in the design and construction of injection-moulded parts including optic lenses, light bases and a range of other components ensures that all Sealite products are of a consistent & superior quality.

Optical Performance

Sealite manufactures a range of marine LED lenses moulded from multi-cavity dies. Complex shapes such as the SL70, BargeSafe™ and 16-segment multi-focus lenses are a testament to the company's superior in-house lens manufacturing capabilities and outstanding optical performance.

Award-winning, Patented Technology

Several United States and Australian patent registrations are held on Sealite's range of innovative designs, with other regional patents pending in Canada, United Kingdom and Europe.

SL-SIGN-20 Model

Sealite's Solar-Powered LED Sign Light is a remote solar-powered signage light designed to suit a range of signage illumination installations where mains power is not available.

The unit can be fitted with up to 2 domed LED light fixtures, each featuring a single 3watt surface mounted ultra-high intensity LED for maximum illumination with an even 120 degree light spread.

The light fixture also features a domed UV-stabilised LEXAN® polycarbonate lens and base, and convenient mounting bracket ensuring flexibility and ease of installation.

The power box, consisting of a 20watt multi-crystalline solar module, 18Ah SLA battery and charge regulator, is made from 7-stage powder-coated aluminium making the unit extremely robust. The Solar-Powered LED Sign Light is designed to withstand a range of environmental conditions, and once installed requires minimal maintenance.

All this is backed by Sealite's industry leading 3-year warranty.

SPECIFICATIONS •

Light Characteristics	
Light Source	Up to 2 domed LEXAN® luminaires each containing 1 x 3watt ultra-high intensity surface-mounted LED (standard SL-SIGN-20 comes with 1 domed luminaire)
Light Spread	Approx 120 degrees
LED Life Expectancy (hours)	>100,000
Electrical Characteristics	
Current Draw (mA)	Up to 250mA per domed luminaire (dependent on numbers)
Circuit Protection	Integrated
Nominal Voltage (v)	12
Autonomy (days)	6
Temperature Range	-40 to 80°C
Solar Characteristics	
Solar Module Type	Multicrystalline
Output (watts)	20
Solar Module Efficiency (%)	14
Charging Regulation	Integrated charge regulator
Power Supply	
Battery Type	SLA (Sealed Lead Acid)
Battery Capacity (Ah)	18
Nominal Voltage (v)	12
Physical Characteristics	
Body Material (Domed Luminaire)	LEXAN® Polycarbonate – UV stabilised
Lens Material	LEXAN® Polycarbonate – UV stabilised
Body Material (Power Box)	7-stage powder-coated aluminium
Mounting	Post mount as standard (optional stake mount available)
Length (mm/inches)	674 / 26 1/2
Width (mm/inches)	332 / 13 1/8
Mass (kg/lbs)	12 / 26 1/2
Product Life Expectancy	Up to 12 years
Certifications	
CE	EN61000-6-3:1997. EN61000-6-1:1997
Quality Assurance	ISO9001:2008
Intellectual Property	
Trademarks	SEALITE® is a registered trademark of Sealite Pty Ltd
Warranty *	3 years
Options Available	• Mounting assemblies • Up to 2 domed luminaires • External ON/OFF Switch

• Specifications subject to change or variation without notice
• * Subject to standard terms and conditions

CE

Installation

The SL-SIGN-20 can be mounted directly into the ground with frangible stake mounts or to a post depending on your application.

Installing the Light Assembly to a Post (SL-SIGN-20-PM)

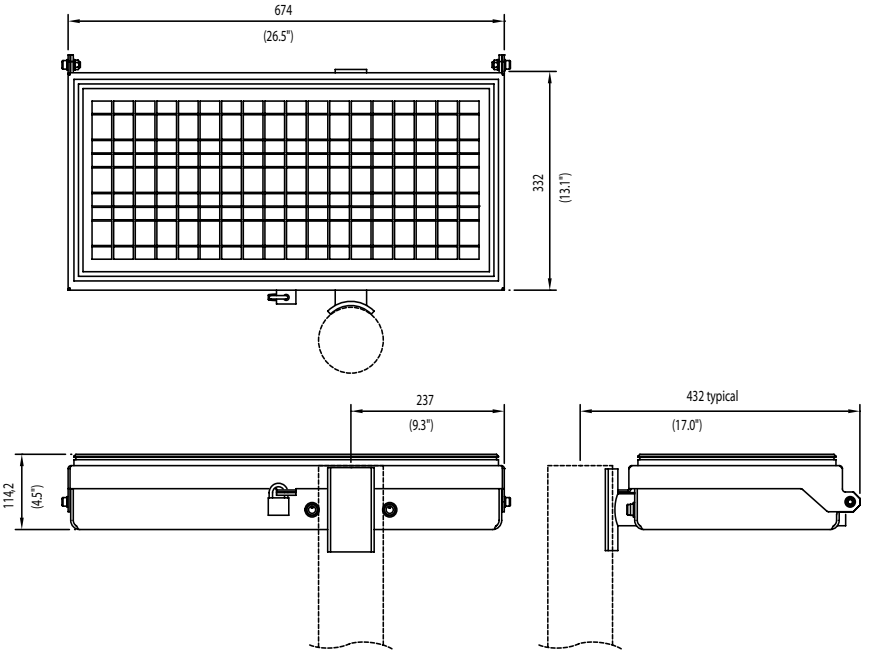
The completed SL-SIGN-20-PM assembly can be mounted onto a post. Two people may be required to install this SL-SIGN-20-PM to a post, depending on the height it is mounted.

a. The SL-SIGN-20-PM is designed to be fitted to a 90mm OD pipe, but can be fitted to any post from 3”OD to 4”OD.

b. Position the SL-SIGN-20-PM against the post and fit 2 x U-Clamps to the upper and lower sections of the bracket. Position the SL-SIGN-20-PM so the solar panel is not shaded when assembly is completed.

c. Secure to the post by tightening the U-Clamps.

d. Position and mount the lights as required.



Installing the Light Assembly to the Frangible Stake Mounts (SL-SIGN-20-FM)

The completed SL-SIGN-20-FM assembly can be mounted on stakes in firm soil (not loose sand, screenings or other unbound material).

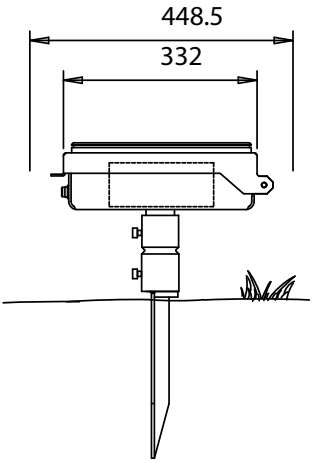
a. Lay the SL-SIGN-20-FM on its side where it is to be located and mark the position for each frangible stake.

b. Use a sledge hammer to drive the stake into the soil at the chosen location. Drive the stake down until the bottom of the stake sleeve is at ground level.

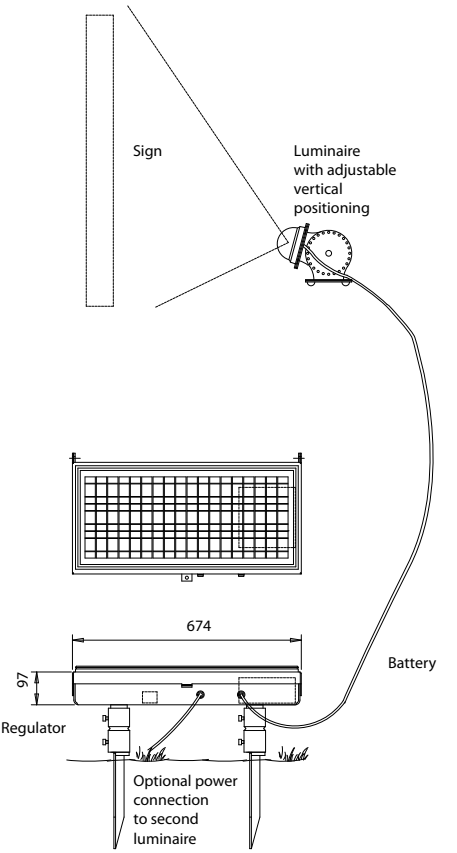
c. Fit the boss of the mount plate into the shorter barrel of the frangible sleeve. Using a 6mm Allen key, tighten the socket head cap screw against the stake mount boss.

d. Fit the SL-SIGN-20-FM on top of the 2 x stakes. The longer barrel of the frangible sleeve should completely cover the stake sleeve. Using a 6mm Allen key, tighten the bottom socket head cap screws against the stake sleeve.

e. Position and mount the lights as required.



Typical installation of SL-SIGN-20-FM



Activation

Charging the Battery

New lights should be left in the sun for 1-2 days to ensure the battery is charged before placing in service.

Preferred Installation Location

For best light performance, ensure solar modules are not covered and are in clear view of the sky with no shadows.

a. Open the Lid of the SL-SIGN-20 and connect the Positive(+) and Negative(-) battery wires to the terminals.

b. Set the regulator to the desired lighting control option, such as D/D – Dusk till Dawn

c. To test the lights are functioning correctly press the TEST button in the lower left hand corner of the regulator

For a comprehensive overview of the regulator, please refer to the Sunlight™ Operator's Manual.

For more information on the Sunlight regulator visit http://www.morningstarcorp.com, or contact Sealite today for a copy.

Maintenance & Servicing

Designed to be almost maintenance-free, the SL-SIGN-20 requires minimal attention, though the following maintenance and servicing information is provided to help ensure the life of your Sealite product.

1. Cleaning Solar Panel- occasional cleaning of the solar panel may be required. Using a cloth and warm soapy water, wipe off any foreign matter before rinsing the panels with fresh water.
2. Battery Check- inspection of batteries should be performed every three years (minimum) to ensure that the charger, battery and ancillary electronics are functioning correctly. Using a voltage meter, check that the battery voltage is at least 12 volts under 100MA load, and ensure all terminals are clear of foreign matter.

Replacing the Battery

The SL-SIGN-20 battery is secured inside the power box under the solar panel. Sealite uses a standard 18Ah 12V Sealed Lead Acid battery that is easily replaced at the end of its life.

1. Remove the lock or bolt that secures the lid to the tray and open the lid.
2. Remove 2 x nuts holding the battery clamp in place, and remove the battery clamp.
3. Disconnect and remove the old battery.

Contact Sealite if a replacement battery is required.

4. Discard old battery in a safe manner.
5. Secure the new battery inside the case.
6. Reconnect the new battery.
7. Test operation of the new battery by pressing the TEST button on the regulator.

Care must be taken to observe the polarity of each wire before they are connected.

To ensure waterproofing of the unit, make sure that there is an even seal.

Trouble Shooting

Problem	Remedy
Light will not activate.	• Ensure light is in darkness. • Wait at least 60 seconds for the program to initialise in darkness. • Ensure battery terminals are properly connected. • Ensure battery voltage is above 12volts.
Light will not operate for the entire night.	• Ensure the battery is above 12volts. • Reducing the light output intensity will reduce current draw on the battery. • Ensure solar module is clean and not covered by shading during the day.

Sealite LED Light Warranty V2.1

Activating the Warranty

Upon purchase, the Sealite Pty Ltd warranty must be activated for recognition of future claims. To do this you have two (2) options:

1. **Postal Registration** - please complete the Sealite Warranty Registration Card and return to Sealite within 30 days of your purchase.
2. **Online Registration** - please complete the Online Registration Form at; www.sealite.com

Sealite Pty Ltd will repair or replace your LED light in the event of electronic failure for a period of up to three years from the date of purchase.

The unit must be returned to Sealite freight prepaid.

Warranty Terms

1. Sealite Pty Ltd warrants that any Sealite marine products fitted with telemetry equipment including but not limited to AIS, GSM, GPS or RF ("Telemetry Products") will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of twelve (12) months from the date of purchase by the original purchaser.
2. Sealite Pty Ltd warrants that any BargeSafe™ Series of LED barge light products ("BargeSafe™ Products") will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of twelve (12) months from the date of purchase by the original purchaser.
3. Sealite Pty Ltd warrants that any LED area lighting products ("Area Lighting Products") but not including sign lighting products will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of twelve (12) months from the date of purchase by the original purchaser.
4. Sealite Pty Ltd warrants that any LED sign lighting products ("Sign Lighting Products") will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of three (3) years from the date of purchase by the original purchaser.
5. Sealite Pty Ltd warrants that any Sealite marine lighting products other than the Telemetry Products, BargeSafe™ Products, and Area Lighting Products ("Sealite Products") will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of three (3) years from the date of purchase by the original purchaser.
6. Sealite Pty Ltd will repair or replace, at Sealite's sole discretion, any Telemetry Products, BargeSafe™ Products, Area Lighting Products or Sealite Products found to be defective in material and workmanship in the relevant warranty period so long as the Warranty Conditions (set out below) are satisfied.
7. If any Telemetry Products, BargeSafe™ Products, Area Lighting Products or Sealite Products are fitted with a rechargeable battery, Sealite Pty Ltd warrants the battery will be free from defect for a period of one (1) year when used within original manufacturer's specifications and instructions.

Warranty Conditions

This Warranty is subject to the following conditions and limitations;

1. The warranty is applicable to lanterns manufactured from 1/1/2009.
2. The warranty is void and inapplicable if:
   a. the product has been used or handled other than in accordance with the instructions in the owner's manual and any other information or instructions provided to the customer by Sealite;
   b. the product has been deliberately abused, or misused, damaged by accident or neglect or in being transported; or
   c. the defect is due to the product being repaired or tampered with by anyone other than Sealite or authorised Sealite repair personnel.

3. The customer must give Sealite Pty Ltd notice of any defect with the product within 30 days of the customer becoming aware of the defect.
4. Rechargeable batteries have a limited number of charge cycles and may eventually need to be replaced. Typical battery replacement period is 3-4 years. Long term exposure to high temperatures will shorten the battery life. Batteries used or stored in a manner inconsistent with the manufacturer's specifications and instructions shall not be covered by this warranty.
5. No modifications to the original specifications determined by Sealite shall be made without written approval of Sealite Pty Ltd.
6. Sealite lights can be fitted with 3rd party power supplies and accessories but are covered by the 3rd party warranty terms and conditions.
7. The product must be packed and returned to Sealite Pty Ltd by the customer at his or her sole expense. Sealite Pty Ltd will pay return freight of its choice. A returned product must be accompanied by a written description of the defect and a photocopy of the original purchase receipt. This receipt must clearly list model and serial number, the date of purchase, the name and address of the purchaser and authorised dealer and the price paid by the purchaser. On receipt of the product, Sealite Pty Ltd will assess the product and advise the customer as to whether the claimed defect is covered by this warranty.
8. Sealite Pty Ltd reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.
9. Input voltage shall not exceed those recommended for the product.
10. Warranty does not cover damage caused by the incorrect replacement of battery in solar lantern models.
11. This warranty does not cover any damage or defect caused to any product as a result of water flooding or any other acts of nature.
12. There are no representations or warranties of any kind by Sealite or any other person who is an agent, employee, or other representative or affiliate of Sealite, express or implied, with respect to condition of performance of any product, their merchantability, or fitness for a particular purpose, or with respect to any other matter relating to any products.

Limitation of Liability

To the extent permitted by section 68A of the Trade Practices Act 1974 (Cth), the liability of Sealite Pty Ltd under this Warranty will be, at the option of Sealite Pty Ltd, limited to either the replacement or repair of any defective product covered by this Warranty. Sealite will not be liable to Buyer for consequential damages resulting from any defect or deficiencies.

Limited to Original Purchaser

This Warranty is for the sole benefit of the original purchaser of the covered product and shall not extend to any subsequent purchaser of the product.

Miscellaneous

Apart from the specific warranties provided under this warranty, all other express or implied warranties relating to the above product is hereby excluded to the fullest extent allowable under law. The warranty does not extend to any lost profits, loss of good will or any indirect, incidental or consequential costs or damages or losses incurred by the purchaser as a result of any defect with the covered product.

Warrantor

Sealite Pty Ltd has authorised distribution in many countries of the world. In each country, the authorised importing distributor has accepted the responsibility for warranty of products sold by distributor. Warranty service should normally be obtained from the importing distributor from whom you purchased your product. In the event of service required beyond the capability of the importer, Sealite Pty Ltd will fulfil the conditions of the warranty. Such product must be returned at the owner's expense to the Sealite Pty Ltd factory, together with a photocopy of the bill of sale for that product, a detailed description of the problem, and any information necessary for return shipment.

Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.
Sealite products are subject to certain Australian and worldwide patent applications.

Other Sealite Products Available

Marine Lanterns
(1-12nm+)

Monitoring
& Control Systems

Bridge & Barge Lights

Marine Buoys
(up to 3mt in diameter)

Area Lighting

Mooring Systems
& Accessories

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